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EXAMINER

ALI, MOHAMMAD

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Technology Center 2100

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 20

Application Number: 09/577,637
Filing Date: May 24, 2000
Appellant(s): SALIBA, GEORGE A.

Peter J. Yim, Reg. No. 44,417
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed January 21, 2004.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

No amendment after final has been filed.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 1-31 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

5,403,639

BELSAN et al.

04-19995

For the above reasons, it is believed that the rejections should be sustained.

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 4-7, 16-20, and 26-31 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,403,639 issued to Belsan et al. ('Belsan' hereinafter).

Claims 2, 3, 8-15, and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,403,639 issued to Belsan et al. ('Belsan', hereinafter) as applied in claims 1, 4-7, 16-20, and 26-31 in view of US Patent 4,445,195 issued to Kazuhiko Yamamoto ('Yamamoto', hereinafter). This rejection is set forth in prior Office Action, Paper No. 11.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1, 4-7, 16-20, and 26-31 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,403,639 issued to Belsan et al. ("Belsan").

As to claim 1, Belsan discloses a method of configuring a tape storage medium for recording a data file having a finite size (col. 3, lines 30-36). The claimed step of 'defining a logical cylinder on said tape storage medium, the tape storage medium

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comprising a single magnetic tape' is disclosed in the Belsan patent as the logical cylinder number identifies uniquely (single) and the logical address is used as a confirmation for cylinders location for data integrity considerations (col. 18, lines 1-6 et seq, Fig. 12). Further the claimed step of 'logical cylinder comprising at least one storage ring and being located entirely on a portion of the magnetic tape' is disclosed in Belsan as the set of data set constitute a portion of a single volume and stored in a magnetic tape in a file server system (col. 3, lines 16-34 et seq, Fig. 2). The claimed step of 'recording on the at least one storage ring said data file' is disclosed in Belsan as any number of copies (recording) of a single track can be made this method since the virtual track directory entries are simple linked together in ring form (col. 22, lines 67 to col. 23, lines 2). Finally, the claimed step of 'wherein a length of said logical cylinder is dynamically allocated based on a size of the data file' is disclosed Belsan as the length of each ring to be maintained at a reasonable manageable number (col. 23, lines 9-11 et seq).

As per claim 4 '...,logical cylinder comprises a plurality of storage rings,...' is disclosed Belsan at col. 16 lines 3-51.

As per claim 5, '...,storage medium and aligning a recording head with said storage ring based on said tracking' is disclosed Belsan at col. 22 lines 62 to col. 23 lines 21.

As per claim 6, 'wherein information about the cylinders and storage rings is recorded on the storage medium' is disclosed Belsan at col. 22 lines 62 to col. 23 lines 21.

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As per claim 7, 'wherein each file is associated with single ring' is disclosed Belsan at col. 22 lines 62 to col. 23 lines 21.

As to claim 16, Belsan discloses a method of storing, on a single storage medium, a data file of finite size (col. 3, lines 30-36). The claimed step of, 'determining a size of the data' is disclosed in Belsan patent as data record from the backend data storage devices stores in the length of ring to maintained at a reasonable manageable number (col. 23, lines 6-11). Further the claimed step of, 'determining, from the size of the data file, a length of a storage ring on said single storage medium for recording said file on said storage ring' is disclosed in the Belsan patent as the logical cylinder number identifies uniquely (single) and the logical address is used as a confirmation for cylinders location for data integrity considerations (col. 18, lines 1-6 et seq, Fig. 12). The claimed step of 'defining, on said storage medium, a logical cylinder to accommodate said storage ring on said logical cylinder' is disclosed Belsan as the length of each ring to be maintained at a reasonable manageable number (col. 23, lines 9-11 et seq). Finally 'logical cylinder being located entirely on a portion o the single storage meduim' is disclosed in Belsan as the set of data set constitute a portion of a single volume and stored in a magnetic tape in a file server system (col. 3, lines 16-34 et seq, Fig. 2).

As per claim 17, 'wherein said storage rings comprises tow substantially parallel logical tracks,...' at col. 16 lines 3-31.

As per claim 18, '...,storage medium comprises logical tracks,...' at col. 22 lines 62 to col. 23 lines 21.

As per claims 19, 'wherein said storage medium,...' is disclosed Belsan at Fig. 2.

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As per claim 20, 'wherein said storage medium,...' is disclosed Belsan at Fig. 2.

As to claim 26, Belsan discloses a method of recording a data file as a logical ring on single recording medium (col. 3, lines 30-36). The claimed step of, 'determining a size of the data' is disclosed in Belsan patent as data record from the backend data storage devices stores in the length of ring to maintained at a reasonable manageable number (col. 23, lines 6-11). Further the claimed step of, 'determining a ring size of the logical ring based on said file size' is disclosed Belsan as the length of each ring to be maintained at a reasonable manageable number (col. 23, lines 9-11 et seq). The claimed step of '...,logical cylinder being located entirely on a portion o the single storage meduim' is disclosed in Belsan as the set of data set constitute a portion of a single volume and stored in a magnetic tape in a file server system (col. 3, lines 16-34 et seq, Fig. 2). Finally, the claimed step of, 'recording said data file in its entirety within said logical ring' is disclosed Belsan as data record from the backend data storage devices stores in the length of ring to maintained at a reasonable manageable number (col. 23, lines 6-11).

As per claim 27, '...,logical cylinder comprises a plurality of storage rings,...' is disclosed Belsan at col. 16 lines 3-51.

As per claim 29, 'wherein said storage rings comprises tow substantially parallel logical tracks,...' is disclosed Belsan at col. 16 lines 3-31.

As per claim 30, 'wherein said storage rings comprises tow substantially parallel logical tracks,...' is disclosed Belsan at col. 16 lines 3-31.

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As per claim 31, '...,storage medium comprises logical tracks,...' is disclosed Belsan at col. 22 lines 62 to col. 23 lines 21.

As per claim 28, 'detecting a least of one previously logical cylinder' is disclosed Belsan at col. 13 lines 4-29, Further, 'positioning a head assembly having a recording head in an area of the magnetic tape,...' is disclosed Belsan at col. 3, lines 32-35, Fig. 2. Finally, 'moving at least one of the magnetic tape,...' is disclosed Belsan at col. 3, lines 32-35, Fig. 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

" A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person."

If this application currently names joint inventors, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary in considering patentability of the claims under 35 U.S.C. § 103. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

Claims 2, 3, 8-15, and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,403,639 issued to Belsan et al. ('Belsan', hereinafter) as applied in claims 1, 4-7, 16-20, and 26-31 in view of US Patent 4,445,195 issued to Kazuhiko Yamamoto ('Yamamoto', hereinafter).

As to claim 2, Belsan discloses a method of configuring a tape storage medium for recording a data file having a finite size (col. 3, lines 30-36). The claimed step of 'defining a logical cylinder on said tape storage medium, the tape storage medium comprising a single magnetic tape' is disclosed in the Belsan patent as the logical cylinder number identifies uniquely (single) and the logical address is used as a confirmation for cylinders location for data integrity considerations (col. 18, lines 1-6 et seq, Fig. 12). Belsan does not disclose the longitudinal direction movement as depicted in figure 2 of the present application. However, Yamamoto discloses an analogous method wherein the recording of variable length in the picture information can actually moves to longitudinal direction as each recording track is divided into blocks in the longitudinal direction of the tape (col. 5, lines 4-15). It would have been obvious to one ordinarily skilled in the art at the time of the present invention was made to combine the teachings of the cited references because longitudinal direction movement for capable of recording picture information of Yamamoto's method would provided Belsan's with necessary infrastructure, which would allow the longitudinal direction movement in the storage medium, as explained Yamamoto in at col. 5 lines 4-5 et seq.

As to claim 3, Belsan discloses a method of configuring a tape storage medium for recording a data file having a finite size (col. 3, lines 30-36). The claimed step of, '...,data selected from a beginning portion and end portion of the data file" is disclosed in Belsan as the set of data set constitute a portion of a single volume and stored in a magnetic tape in a file server system (col. 3, lines 16-34 et seq, Fig. 2). Belsan does not disclose the longitudinal direction movement as depicted in figure 2 of the present

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application. However, Yamamoto discloses an analogous method wherein the recording of variable length in the picture information can actually moves to longitudinal direction as each recording track is divided into blocks in the longitudinal direction of the tape (col. 5, lines 4-15). It would have been obvious to one ordinarily skilled in the art at the time of the present invention was made to combine the teachings of the cited references because longitudinal direction movement for capable of recording picture information of Yamamoto's method would provided Belsan's with necessary infrastructure, which would allow the longitudinal direction movement in the storage medium, as explained Yamamoto in at col. 5 lines 4-5 et seq.

As to claim 8, Belsan discloses a magnetic tape data storage system for storing data file (col. 3, lines 30-36). Belsan teaches 'a magnetic tape,...' as the logical cylinder number identifies uniquely (single) and the logical address is used as a confirmation for cylinders location for data integrity considerations (col. 18, lines 1-6 et seq, Figs. 2, 12). Further, Belsan teaches 'at least one logical cylinder extending along,...' (col. 22 lines 62 to col. 23 lines 11). Finally, Belsan teaches, 'at least one data storage ring located entirely within a respective logical cylinder,...' (col. 13 lines 8-29). Belsan does not disclose the longitudinal direction movement as depicted in figure 2 of the present application. However, Yamamoto discloses an analogous method wherein the recording of variable length in the picture information can actually moves to longitudinal direction as each recording track is divided into blocks in the longitudinal direction of the tape (col. 5, lines 4-15). It would have been obvious to one ordinarily skilled in the art at the time of the present invention was made to combine the teachings of the cited references

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because longitudinal direction movement for capable of recording picture information of Yamamoto's method would provided Belsan's with necessary infrastructure, which would allow the longitudinal direction movement in the storage medium, as explained Yamamoto in at col. 5 lines 4-5 et seq.

Claim 21 has same subject matter as of claim 8, except 'a control interface receiving data of a file to be recorded on the recording media,...', and 'wherein said file data are recorded on said recording media,...' is disclosed Belsan at col. 22 lines 62 to col. 23 lines 21, col. 16 lines 3-31 and essentially rejected for the same reasons as discussed in claim 8. Belsan does not disclose the longitudinal direction movement as depicted in figure 2 of the present application. However, Yamamoto discloses an analogous method wherein the recording of variable length in the picture information can actually moves to longitudinal direction as each recording track is divided into blocks in the longitudinal direction of the tape (col. 5, lines 4-15). It would have been obvious to one ordinarily skilled in the art at the time of the present invention was made to combine the teachings of the cited references because longitudinal direction movement for capable of recording picture information of Yamamoto's method would provided Belsan's with necessary infrastructure, which would allow the longitudinal direction movement in the storage medium, as explained Yamamoto in at col. 5 lines 4-5 et seq.

As to claim 9, Belsan discloses a magnetic tape data storage system for storing data file (col. 3, lines 30-36). Belsan teaches '...logical cylinder is dynamically allocated based on the size of the data file' (col. 2 lines 55 to col, 3 lines 36).

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As to claim 12, 14 and 15 Belsan discloses a magnetic tape data storage system for storing data file (col. 3, lines 30-36). Belsan teaches , 'single magnetic tape,..."col. 3, lines 30-36, Fig. 2)

As to claim 10, Belsan discloses a magnetic tape data storage system for storing data file (col. 3, lines 30-36). Belsan teaches, '...logical tracks and logical tracks of ring are recorded in opposite recording directions (at col. 31 lines 39-66)

As to claim 11, Belsan discloses a magnetic tape data storage system for storing data file (col. 3, lines 30-36). Belsan teaches '..., ring store an identified field,... (col. 23, lines 1-11)

As to claims 13, Belsan discloses a magnetic tape data storage system for storing data file (col. 3, lines 30-36). Belsan teaches, 'each data ring can store 256KB' (col. 3, lines 30-36 et seq).

(11) Response to Argument

A. Response to Appellant's Argument Regarding Claims 1, 4-7, 16-20, and 26-31 that Belsan Fail to disclose "a logical cylinder located entirely on a portion of a single recording medium".

Appellant argues that reference fail to teach a logical cylinder located entirely on a portion of a single recording medium. The Examiner respectfully disagrees with Appellant's interpretation of the reference. Appellant's claims 1, 16, and 26 calls for the step of "defining a logical cylinder on said storage medium, the tape storage medium comprising a single magnetic tape". Pursuant to Appellant's specification configuring a tape storage medium for recording a data file having a finite size, wherein the method includes defining a logical cylinder on storage medium, the cylinder comprising at least one storage ring, and recording on one of the at least one storage rings the data file, as illustrated in specification page 5, lines 5-9, Appeal Brief Page 3, sect-V, and Figs. 2-4.

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Similarly, Belsan discloses the logical cylinder number identifies uniquely and the logical address is used as a confirmation for cylinders location for data integrity considerations. The Logical Cylinder Directory (medium) count the number of Virtual Track Instances contained in the Logical Cylinder. The storage control includes a free space directory that list all of the logical cylinders in the disk drive (medium) array data storage subsystem ordered by logical device (see col. 18, lines 1-22 et seq, Fig. 12, Belsan). Further, logical tracks are organized into logical cylinders, each of which is the collection of all logical tracks within a redundancy group that can be accessed at a common logical actuator position. Disk drive array data storage subsystem appears to the host processor to be a collection of large form factor disk drives, each of which contains a predetermined number of tracks of a predetermined size called a virtual track (see col. 16, lines 8-16 and Fig. 2 et seq, Belsan). The claimed a logical cylinder located entirely on a portion of a single recording medium hence very similar to Belan's a logical cylinder located entirely on a portion of a single recording medium.

B. Appellant argues that reference fail to teach "said logical cylinder comprising at least one storage ring and being located on a portion of the magnetic tape".

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The Examiner respectfully disagrees with Appellant's interpretation of the reference. Appellant's claims 1, 16, and 26 calls for the step of "logical cylinder comprising at least one storage ring and being located on a portion of the magnetic tape". Pursuant to Appellant's specification page (see page 5, lines 18-23) a magnetic tape having a longitudinal recording direction and plurality of transversely spaced logical tracks, at least one logical cylinder extending along the longitudinal recording direction, and at least one data storage ring located entirely within respective logical cylinder.

Similarly, Belsan discloses as stated above and virtual cylinder number and copy virtual head number elements that act as a pointer to another virtual track that was copied from the first virtual track. The virtual track directory entry for the track pointed to from the first virtual track directory entry contains the same logical address as the first and contains the virtual track address of the next virtual track directory entry in the chain of target data records. Multiple tracks copied from a single source track are identified by a singly linked list that loops back to itself at the source track to form a ring of pointers (see col. 22, lines 54-65, Belsan). Further, the set of data sets constitute a portion of a single volume or it may consist of one or more volumes whose data needs to be synchronized for recovery and data processor access purposes. Single volume of data stored in a media as automated magnetic tape library system (see col. 3, lines 16-34, Belsan). The claimed said logical cylinder comprising at least one storage ring and being located on a portion of the magnetic tape are hence very similar to Belsan's said logical cylinder comprising at least one storage ring and being located on a portion of the magnetic tape.

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C. Appellant argues that references fail to teach “at least one logical cylinder extending along the longitudinal recording direction of the single magnetic tape and being located entirely on a portion of the single magnetic tape”.

The Examiner respectfully disagrees with Appellant’s interpretation of the references.

Similarly, Belsan discloses as stated above. Belsan does not disclose the longitudinal direction movement as depicted in figure 2 of the present application. However, Yamamoto cures such deficiency by teaching an analogous method wherein the recording of variable length in the picture information can actually moves to longitudinal direction as each recording track is divided into blocks in the longitudinal direction of the tape (see col. 5, lines 4-15, Yamamoto). It would have been obvious to one ordinarily skilled in the data processing art at the time of the present invention to combine the teachings of the cited references. The teachings of Yamamoto’s longitudinal direction movement for capable of recording picture information of Yamamoto’s method would provided Belsan’s system with necessary infrastructure, which would allow the longitudinal direction movement in the storage medium, as explained Yamamoto in at col. 5 lines 4-5 et seq. The claimed at least one logical cylinder extending along the longitudinal recording direction of the single magnetic tape and being located entirely on a portion of the single magnetic tape are hence very analogous to Belsan’s and Yamamoto’s at least one logical cylinder extending along the

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longitudinal recording direction of the single magnetic tape and being located entirely on a portion of the single magnetic tape.


Conclusion

(12) The references disclose the claimed logical cylinder extending along the longitudinal recording direction of the single magnetic tape and being located entirely on a portion of the single magnetic tape because Belsan provides logical cylinder with magnetic tape and Yamamoto allows longitudinal direction the logical cylindere. Last, Belsan and Yamamoto can properly combined to yield the claimed invention since they are analogous art, and Yamamoto further complement of Belsan.. In light of the foregoing arguments, the Examiner respectfully requests the Honorable Board of Appeals and Interferences to sustain the rejection.



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Respectfully submitted,


Mohammad Ali, Patent Examiner
March 31, 2004

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